Silicon Carbide Schottky Rectifier Die

Rethink the Possibilities™

Discretes do Matter™

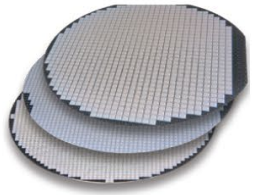
New SiC Schottky Rectifier Die

RoHS & REACH compliant

Silicon Carbide Schottky Rectifier Die

650V | 4A, 6A, 8A, 10A, 30A
1200V | 2A, 5A, 10A, 50A

SiC
SILICON CARBIDE



Features

- Positive temperature coefficient
- Low reverse leakage current
- Temperature independent switching characteristics
- High operating junction temperature
- Metallization suitable for standard die attach technologies
- Top metallization optimized for wire bonding

Applications

- Power inverters
- Industrial motor drives
- Switch-mode power supplies
- Power factor correction (PFC)
- Over-current protection

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New SiC Schottky Rectifier Die

650V Devices

Central Item No.	I_F (A) T_A=25°C	V_{RRM} (V) T_A=25°C	V_F (V) TYP	V_F (V) MAX	Die Size (MILS)	Top Metallization (Å)	Bottom Metallization (Å)
CPC08-SIC04-650	4.0	650	1.5	1.7	39.4 X 39.4	Al - 50,000	Ti/Ni/Ag - 1,000/2,000/10,000
CPC09-SIC06-650	6.0	650	1.5	1.7	46.5 X 46.5		
CPC10-SIC08-650	8.0	650	1.5	1.7	52.8 X 52.8		
CPC07-SIC10-650	10	650	1.5	1.7	57.5 X 57.5		
CPC15-SIC10-650	10	650	1.5	1.7	57.5 X 57.5	Ni/Au - 15,000/500	
CPC11-SIC30-650	30	650	1.5	1.7	94.5 X 94.5	Al - 50,000	

1200V Devices

Central Item No.	I_F (A) T_A=25°C	V_{RRM} (V) T_A=25°C	V_F (V) TYP	V_F (V) MAX	Die Size (MILS)	Top Metallization (Å)	Bottom Metallization (Å)
CPC12-SIC02-1200	2.0	1200	1.4	1.6	40.9 X 50.4	Al - 50,000	Ti/Ni/Ag - 1,000/2,000/10,000
CPC05-SIC05-1200	5.0	1200	1.5	1.7	54.3 X 76.8		
CPC06-SIC10-1200	10	1200	1.4	1.6	86.6 X 86.6		
CPC14-SIC10-1200	10	1200	1.4	1.6	86.6 X 86.6	Ni/Au - 15,000/500	
CPC13-SIC50-1200	50	1200	1.5	1.7	179.5 X 179.5	Al - 50,000	

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New SiC Schottky Rectifier Die

FEATURES

- High operating temperature capability
- Positive temperature coefficient
- Low switching loss
- Stable switching over temperature extremes

APPLICATIONS

- Power inverters
- Motor drives
- Switch-mode power supplies
- Power factor correction (PFC)

BENEFITS

- Silicon Carbide provides stable switching over extreme temperature

CURRENT STATUS

- Die available now

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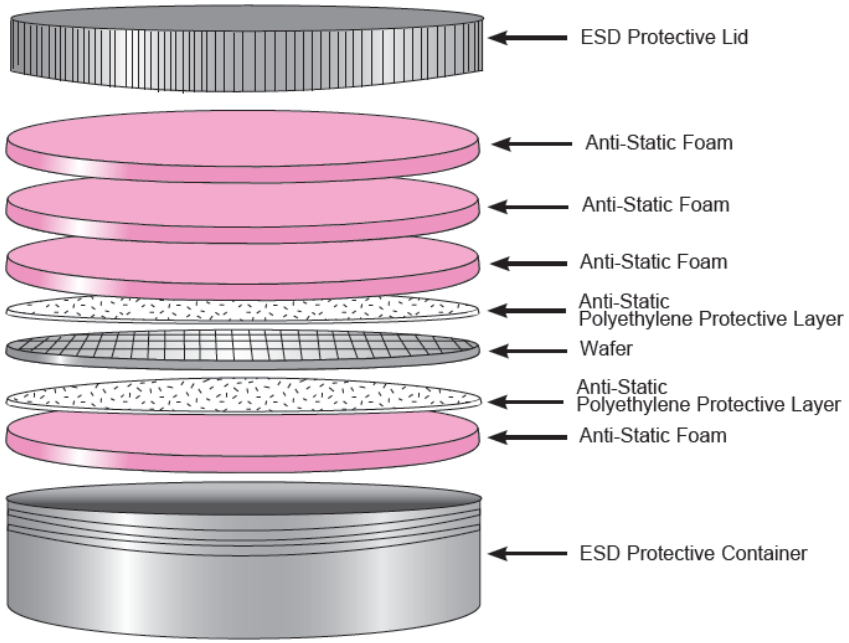
New SiC Schottky Rectifier Die

Die Packaging Information

Wafer Form

-WN

- 100% tested with rejects inked
- Use - WN suffix when ordering

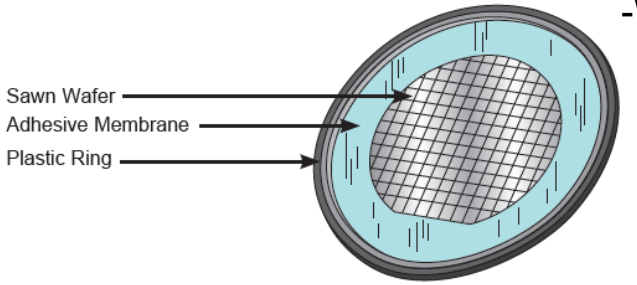


Sawn Wafer

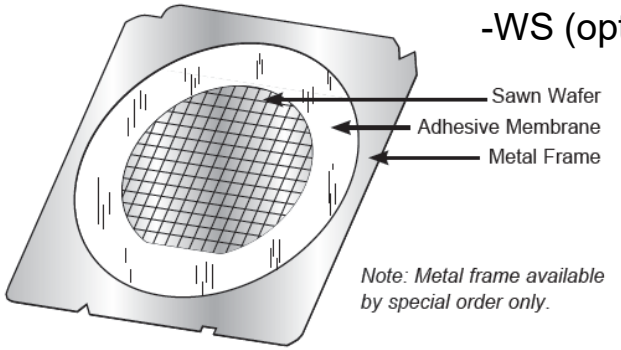
- Available on metal frame or plastic ring
- 100% tested with rejects inked.
- Mounted on adhesive membrane on a metal frame or plastic ring.
- Use - WR suffix when ordering for plastic ring.

Metal frame (- WS suffix) available by special order only.

-WR



-WS (optional)



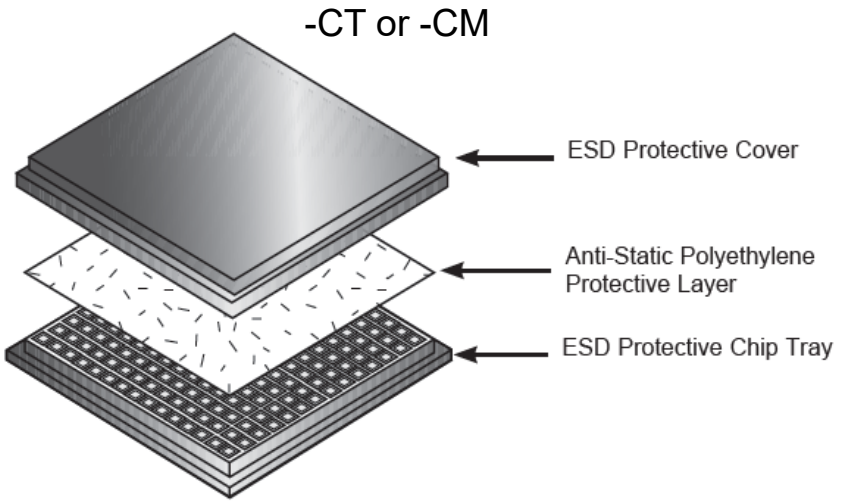
Note: Metal frame available by special order only.

New SiC Schottky Rectifier Die

Die Packaging Information

Chip Form

- Waffle Packed.
- Use: **-CT, -CM,** suffix when ordering.
  - **-CT** (100% tested with rejects removed).
  - **-CM** (100% tested and 100% visually inspected per MIL-STD-750, [method 2072 transistors] [method 2073 diodes] with rejects removed).



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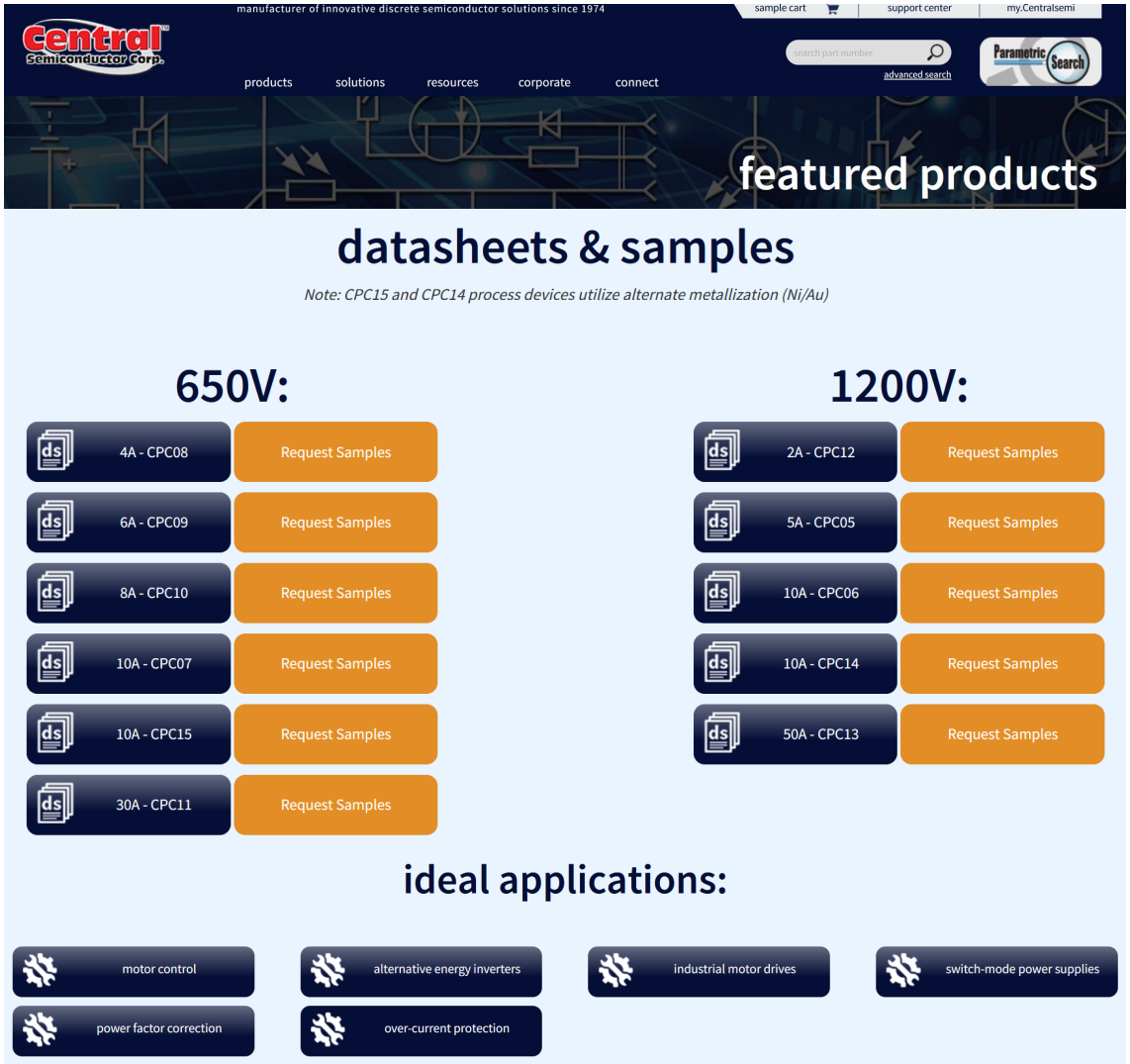

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New SiC Schottky Rectifier Die

Product Brief

4A - CPC08

Product Brief

Central Semiconductor Corp.

RoHS & REACH compliant

Silicon Carbide Schottky Rectifier Die

650V | 4A, 6A, 8A, 10A, 30A
1200V | 2A, 5A, 10A, 50A

SiC SILICON CARBIDE

Central Semiconductor's latest Silicon Carbide Schottky rectifier die portfolio is optimized for high temperature applications. Parametrically, these devices are energy efficient as a result of low total conduction losses and minimal changes to switching characteristics as a function of temperature.

Features

- Positive temperature coefficient
- Low reverse leakage current
- Temperature independent switching characteristics
- High operating junction temperature
- Metallization suitable for standard die attach technologies
- Top metallization optimized for wire bonding

Applications

- Power inverters
- Industrial motor drives
- Switch-mode power supplies
- Power factor correction (PFC)
- Over-current protection

650V Devices

Central Item No.	I_F (A) T_A=25°C	V_{RRM} (V) T_A=25°C	V_F (V) TYP	V_F (V) MAX	Die Size (MILS)	Top Metallization (Å)	Bottom Metallization (Å)
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CPC11-SIC30-650	30	650	1.5	1.7	94.5 X 94.5	Al - 50,000	

1200V Devices

Central Item No.	I_F (A) T_A=25°C	V_{RRM} (V) T_A=25°C	V_F (V) TYP	V_F (V) MAX	Die Size (MILS)	Top Metallization (Å)	Bottom Metallization (Å)
CPC12-SIC02-1200	2.0	1200	1.4	1.6	40.9 X 50.4	Al - 50,000	Ti/Ni/Ag - 1,000/2,000/10,000
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CPC13-SIC50-1200	50	1200	1.5	1.7	179.5 X 179.5	Al - 50,000	

SPICE Models and other technical resources:
Visit www.centralsemi.com to download SPICE models for these devices.

RoHS and REACH compliance declarations
Visit the Quality section of Central's website to access.

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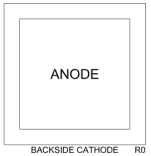
CPC08-SIC04-650

Silicon Carbide Schottky Rectifier Die
4.0 Amp, 650 Volt

The CPC08-SIC04-650 Silicon Carbide Schottky die is optimized for high temperature applications. Parametrically, the device is energy efficient as a result of low total conduction losses and minimal changes to switching characteristics as a function of temperature.

FEATURES:
- Positive temperature coefficient
- Low reverse leakage current
- Temperature independent switching characteristics
- High operating junction temperature
- Metallization suitable for standard die attach technologies
- Top metallization optimized for wire bonding

APPLICATIONS:
- Power inverters
- Industrial motor drives
- Switch-mode power supplies
- Power factor correction
- Over-current protection



BACKSIDE CATHODE R0

MECHANICAL SPECIFICATIONS:

Die Size	39.4 x 39.4 MILS
Die Thickness	5.9 MILS
Anode Bonding Pad Size	30.7 x 30.7 MILS
Top Side Metalization	Al – 50,000Å
Back Side Metalization	Ti/Ni/Ag – 1,000Å/2,000Å/10,000Å
Scribe Alley Width	3.15 MILS
Wafer Diameter	6 INCHES
Gross Die Per Wafer	14,557

MAXIMUM RATINGS: (T_A=25°C unless otherwise noted)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	650	V
Peak Reverse Surge Voltage	V_{RSM}	650	V
DC Blocking Voltage	V_R	650	V
Continuous Forward Current	I_F	4.0	A
Peak Forward Surge Current, tp=10ms	I_{FSM}	30	A
Operating and Storage Junction Temperature*	T_J, T_{stg}	-55 to +175	°C

*Maximum junction temperature was determined via a TO-247 package type. Theoretically, SiC die can operate at junction temperatures greater than 600°C.

ELECTRICAL CHARACTERISTICS: (T_J=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
I_R	V_R=650V		10	170	μA
BV_R	I_R=170μA	650			V
V_F	I_F=4.0A		1.5	1.7	V
V_F	I_F=4.0A, T_J=150°C		1.8	2.1	V
V_F	I_F=4.0A, T_J=175°C		2.0	2.25	V
Q_C	V_R=400V		9.3		nC
C_J	V_R=1.0V, f=1.0MHz		125		pF
C_J	V_R=300V, f=1.0MHz		16		pF
C_J	V_R=600V, f=1.0MHz		13		pF

R2 (22-July 2020)

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New SiC Schottky Rectifier Die

ideal applications:

Motor Control System

Today's intelligent motor control systems apply power to motors only as needed, in the amount required, and in near perfect unison with the dynamics of the power grid. To this end, Central Semiconductor provides a host of devices that assist in motor control power management, Power Factor Correction (PFC) and control circuit functionality.

application topology

AC-DC Switch Mode Power Supply with PFC

Effective Power Factor Correction (PFC) designs require low loss, fast switching semiconductor components. Central Semiconductor Corp. manufactures a deep and wide portfolio of highly efficient MOSFETs, Hyperfast rectifiers and a host of other discrete components ideally suited for today's demanding PFC designs.

application topology

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For further information on this or other new products, please contact your Central Sales representation.

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